SD11
A512
No 7

1.3141 C-3
070

Forest Service, United States Department of Agriculture

ALLEGHENY FOREST EXPERIMENT STATION*

*****

Technical Note No. 7.

CROWN SPREAD OF ALLEGHENY HARDWOODS

The crown spread of 570 trees on three plots established by the Station on Little Arnot Creek, Warren County, Pennsylvania, and described in Technical Notes 5 and 6, has been obtained by planimetering the horizontal crown projections on the plot maps. These measurements, smoothed graphically, are related to diameter as follows:

Species	D.B.H. (inches)								Basis No. trees
	4	6	8	10	12	14	16	18	
	Crown area (square feet)								
Beech	108	174	246	331	428	529	634	742	140
Sugar maple	110	166	235	312	396	483	571	658	189
Red maple	100	135	193	338	485				54
White ash	80	108	167	258	382				50
Black cherry	43	89	156	238	326	426	559		32
Yellow and sweet birch	73	129	214	344	492				105

The above table is based on a stand which averaged 290 trees, 2" d.b.h. or larger, per acre, most of which were in the 60-year age class. The crown space demands shown above cannot be assumed to hold true for stands differing in composition, site, or past treatment, all of which probably influence crown development. Nor can degree of stocking be judged from the above table because natural stands with layered and overlapping crowns, particularly of tolerant species, support more trees per acre than would be calculated simply by dividing 43,560 square feet - the area of an acre - by the average crown spread of a given species and d.b.h.

Close study of tree crowns on these plots show that small beech, red maple, and sugar maple under suppression produce a typically flat, wide crown, covering more square footage than crowns of intolerant 60-year-old black cherry, white ash, and yellow and sweet birches, of equal diameter; the latter are characteristically shaped like a feather duster. Large beech and sugar maple over 12 inches d.b.h. on these plots are hold-over trees from the virgin forest, and have large crowns because release by the hemlock cutting of 1868 caused them to "wolf" space above the understory. For a given d.b.h. the intolerant species tend to occupy less crown space than do the tolerants, especially in the smaller sizes, but both black cherry and the birches tend to produce a spreading crown when they are in the dominant canopy.

LIBRARY COPY
ROCKY MT. FOREST & RANGE
EXPERIMENT STATION

A. F. Hough,
Assistant Silviculturist.

June 19, 1935.

INDEXED

*Maintained at Philadelphia, Pa., in cooperation with the University of Pennsylvania.